

CLAIMS

1. Filter arrangement with a linear phase characteristic comprising:
  - a. a first filter (F1) having an amplitude characteristic that meets a predefined amplitude specification and having a phase characteristic that generally is a non-linear function of frequency; and
  - b. a second filter (F2), cascade coupled to said first filter (F1), said second filter (F2) having a phase characteristic that is, up to a linear function of frequency, substantially opposite to said phase characteristic of said first filter (F1),  
CHARACTERISED IN THAT said second filter (F2) is an anti-causal version of a fictive digital all-pass filter (APF) having a phase characteristic that is, up to a linear function of frequency, substantially equal to said phase characteristic of said first filter (F1).
- 15 2. Filter arrangement according to claim 1,  
CHARACTERISED IN THAT said first filter (F1) is an analogue filter.
- 20 3. Filter arrangement according to claim 1,  
CHARACTERISED IN THAT said first filter (F1) is a digital filter.
4. Method to develop a filter arrangement with a linear phase characteristic comprising the steps of:
  - a. designing a first filter (F1) so that its amplitude characteristic meets a predefined amplitude specification;
  - b. implementing said first filter (F1);
  - c. determining a phase characteristic of said first filter (F1), said phase characteristic being a non-linear function of frequency;
  - d. implementing a second filter (F2) so that its phase characteristic is, up to a linear function of frequency, substantially opposite to said phase characteristic of said first filter (F1); and

e. cascade coupling said first filter (F1) and said second filter (F2) to thereby constitute said filter arrangement,

CHARACTERISED IN THAT said step of implementing said second filter (F2) comprises the substeps of:

- 5        d1. designing a fictive digital all-pass filter (APF) so that its phase characteristic is, up to a linear function of frequency, substantially equal to said phase characteristic of said first filter (F1); and
- d2. implementing said second filter (F2) as an anti-causal version of said fictive digital all-pass filter (APF).